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BROADCASTING TYPE REAL TIME HYPERTEXT COMMUNICATION METHOD AND
RECEIVER

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[There are no amendments to this patent.]

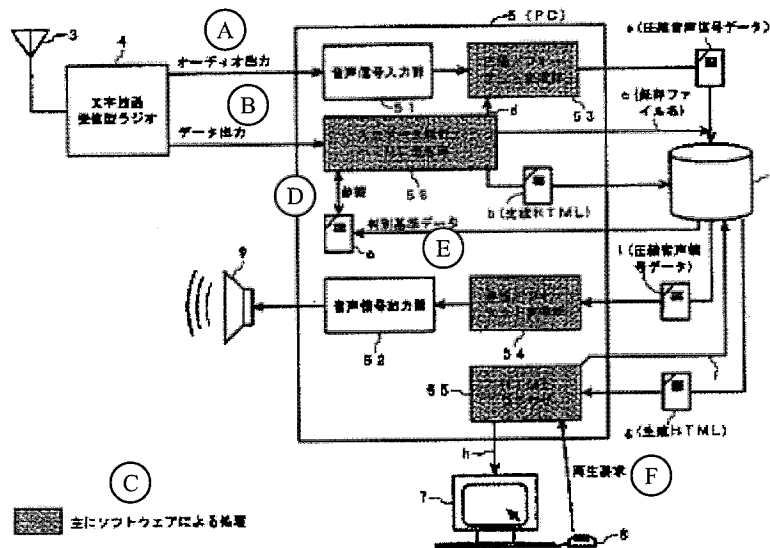
Abstract

Problem

To provide a broadcasting type real time hypertext communication method and a recorder characterized by the fact that the viewer can make a finer selection or choice to receive or record broadcasting content from broadcasting programs than in the prior art.

Constitution

Principal and secondary text broadcasts from a broadcasting station are received by text broadcasting receiving type radio (4) and are sent to PC (5). Said secondary broadcast describes the program title, contents and related information of the principal broadcast in a hypertext description format in company with an identifier defined by the attributes of the content. In PC (5), its input data analysis/HTML generating part (56) compares the information of the secondary broadcast with preset judgment standard data, so that only a program of the principal broadcast fitting the judgment standard data is extracted to generate the HTML file. The extracted program of the principal broadcast is compressed and stored in the HTML file. The HTML file can be reproduced by general purpose HTML browser (55).



- Key:
- b (Generated HTML)
 - c (Stored file name)
 - e (Compressed audio signal data)
 - g (Generated HTML)
 - i (Compressed audio signal data)
 - A Audio output

B	Data output
C	Mainly processing by means of software
D	Reference
E	Discriminant criterion data
F	Reproduction request
4	Text broadcasting receiving type radio
51	Audio signal input part
52	Audio signal output part
53	Compressing/format converting part
54	Extending/format converting part
55	HTML browser
56	Input data analysis/HTML generating part

Claims

1. A broadcasting type real time hypertext communication method characterized by the following facts:

in a broadcasting type unidirectional communication method, in addition to a principal communication path for broadcasting the principal content of the broadcast, one or several secondary communication paths for broadcasting at least text information are present; in this broadcasting type unidirectional communication method,

information pertaining to the program title, content and related information of the principal broadcast is described in a hypertext description format in company with an identifier defined by attributes of the content;

and the program title, content and related information of said principal broadcast described in said hypertext description format are broadcast via said secondary communication path in synchronization with the corresponding principal broadcast and in company with a time identification text indicating the start, end and midpoint of program broadcast.

2. The broadcasting type real time hypertext communication method described in Claim 1 characterized by the fact that

the data described in the hypertext description format and broadcast via said secondary communication path include WWW address information and program address information described in the hypertext format described in Claim 1.

3. The broadcasting type real time hypertext communication method described in Claim 1 or 2 characterized by the fact that

said broadcast consists of any of an FM broadcast, TV broadcast, and data transmission.

4. A type of broadcasting type real time hypertext communication receiver characterized by the fact that it has the following parts: a receiving part that receives the content of a principal broadcast broadcast via a principal communication path and the content of a secondary broadcast

described in a hypertext description format and broadcast via a secondary communication path, a judgment standard data setting part that sets judgment standard data of the re-collected broadcast content, a principal broadcast passing means that explains the identifier of the content of the hypertext in said secondary broadcast and only lets the content of the principal broadcast in agreement with said judgment standard data pass through it, and a reproduction means that reproduces the principal broadcast that is allowed to transmit by said principal broadcast passing means.

5. A type of broadcasting type real time hypertext communication receiver characterized by the fact that it has the following parts: a receiving part that receives the content of a principal broadcast, broadcast via a principal communication path and the content of a secondary broadcast described in a hypertext description format and broadcast via a secondary communication path, a judgment standard data setting part that sets judgment standard data of the re-collected broadcast content, a principal broadcast passing means that explains the identifier of the content of the hypertext in said secondary broadcast and only lets the content of the principal broadcast in agreement with said judgment standard data pass through it, and a recording means that records the principal broadcast that is allowed to pass by said principal broadcast passing means.

6. The broadcasting type real time hypertext communication receiver described in Claim 5 characterized by the fact that

said principal broadcast passing means has an HTML automatic generating means that automatically generates HTML text indicating the content of the principal broadcast based on information of the identifier of the content of the hypertext of said secondary broadcast.

7. The broadcasting type real time hypertext communication receiver described in Claim 5 characterized by the fact that

said principal broadcast passing means has a means that digitizes the content of the principal broadcast in agreement with said judgment standard data, and a means that attaches a file name to it and sends it to said recording means.

8. The broadcasting type real time hypertext communication receiver described in Claim 5 characterized by the fact that

it also has an HTML reproduction means that performs reproduction of the HTML text recorded in said recording means, and the content of the HTML text can be displayed on the monitor of said HTML reproduction means.

9. The broadcasting type real time hypertext communication receiver described in Claim 8 characterized by the fact that

said HTML reproduction means has a function of accessing the WWW homepage contained in said secondary broadcast.

Detailed explanation of the invention

[0001]

Technical field of the invention

The present invention pertains to a broadcasting type real time hypertext communication method and receiver. More specifically, the present invention pertains to a broadcasting type real time hypertext communication method and receiver characterized by the fact that it uses a secondary communication path that can broadcast text information to broadcast the information of the content of a principal broadcast in real time in hypertext format.

[0002]

Prior art

In the prior art, in an FM broadcast and TV broadcast, in addition to the sound and image as the principal broadcast, text is also contained for broadcasting by means of a secondary carrier wave to perform so-called text broadcasting service. In said text broadcast, information regarding news, weather forecasts, stock quotes and other information is carried and is continuously broadcast to users. A radio or television set with a receiving function is used by a user to listen to said information together with the principal broadcast. On the other hand, in the internet world, the WWW (worldwide web) has become popular. The information (content) described in hypertext known as HTML is transmitted via the internet from the server, and anyone in the world can access it. In the HTML text, in addition to the text, the content also can include multimedia sound and image information, etc. by clicking at the appropriate position (pointer or tag). In addition, it is possible to describe the text structure in chapters and sections, etc. (structure formation). Also, it has the characteristic feature that a resource in the network can be described in the form known as a URL. By describing the pointer on the URL, it is possible to jump from one resource to another one on the internet as one browses.

[0003]

Problems to be solved by the invention

The WWW is a widely used system on the internet. It is believed that the concept of hypertext used in said system will be adopted in a wide range of fields in the future. One of said application fields is the broadcasting field. In the prior art, however, nothing has been done to incorporate the concept of hypertext in a broadcasting system.

[0004]

In the prior art, for broadcasting from a broadcasting station, the viewer uses G code or the like to reserve a desired program, such as a live singing performance, in certain time units from a starting time (hour and minute) to an ending time (hour and minute). However, the user can only record the scene containing the songs in the singing program, and cannot finely select with respect to the recorded program, such as an introductory speech portion by the anchor person.

[0005]

The objective of the present invention is to solve the aforementioned problems of the prior art by providing a broadcasting type real time hypertext communication method and recorder characterized by the fact that the viewer can more finely select or choose the broadcast content from a broadcasting program and records (video/audio recording) received program than in the prior art. Another objective of the present invention is to enable description of a network resource (URL) used in the www in a secondary broadcast, and, at the same time, to provide a description at the address in the same format as that for a broadcast program, so that the viewer can access a program of interest.

[0006]

Means to solve the problems

In order to realize the aforementioned objectives, the present invention provides as a first characteristic feature a broadcasting type real time hypertext communication method characterized by the following facts: in a broadcasting type unidirectional communication method, in addition to a principal communication path for broadcasting the principal content of the broadcasting, one or several secondary communication paths for broadcasting at least text information are present; in this broadcasting type unidirectional communication method, information pertaining to the program title, content and related information of the principal broadcast is described in hypertext description format in company with an identifier defined by attributes of the content; and the program title, content and related information of said principal broadcast described in said hypertext description format are broadcast via said secondary communication path in synchronization with the corresponding principal broadcast and in company with time identification text indicating the start, end and midpoint of program broadcast. As a second characteristic feature, the present invention pertains to a broadcasting type real time hypertext communication method characterized by the fact that the data described in the hypertext description format and broadcast via said secondary communication path include

WWW network resource (URL) information and program address information described in hypertext format.

[0007]

Also, as a third characteristic feature, the present invention provides a type of broadcasting type real time hypertext communication receiver characterized by the fact that it has the following parts: a receiving part that receives the content of a principal broadcast broadcast via a principal communication path and the content of a secondary broadcast described in hypertext description format and broadcast via a secondary communication path, a judgment standard data setting part that sets judgment standard data of the re-collected broadcast content, a principal broadcast passing means that explains the identifier of the content of the hypertext in said secondary broadcast and only lets the content of the principal broadcast in agreement with said judgment standard data pass through it, and a recording means that records the principal broadcast that is allowed to pass by said principal broadcast passing means.

[0008]

According to said characteristic features of the present invention, different from the prior art in which information flows unidirectionally in broadcasting, by adding identification information in real time, the viewer can select and enjoy a desired program, and can classify in an adaptive way in audio/video recording of the program. Also, since the identifier can be defined as an extension of the existing www, it is possible to unify the www service of the internet and broadcasting service.

[0009]

Embodiment of the present invention

In the following, an explanation will be given regarding the present invention in detail with reference to figures. In order to realize the aforementioned objectives, the present invention emphasizes introducing the concept of hypertext into a broadcast. In order to adopt the concept of hypertext in a broadcast, the following topics (1)-(4) should be addressed.

[0010]

(1) Establishment of transmission system of principal broadcast

For broadcasting, the transmission system of the principal broadcast has been established for audio and video + audio, but it is difficult to handle hypertext by the existing equipment, and such hypertext may have an adverse influence on the viewer.

[0011]

(2) Unidirectionality

In broadcasting, the information is transmitted unidirectionally from the broadcasting station to the viewer. On the other hand, the www is of a conversational (interactive) type. That is, hypertext information can be provided by the server upon request of the user. As a result, for a receiver, there is no way to request a desired URL from the server. For VOD (video-on-demand) that is being studied, testing is underway to provide interactive content by setting a transmission path in the upward direction of request to the server.

[0012]

(3) Guarantee of real time performance

Said www cannot guarantee real time performance with information provided at any time in real time, because the information is provided only upon request of the user as explained above. Broadcasting is real time transmission without interruption, and it is necessary to take this into consideration. More specifically, there is a demand for starting service at an intermediate point and then cutoff at another intermediate point.

[0013]

(4) Asynchronous property of broadcast of the principal communication path and broadcast of the secondary communication path

While hypertext provides information via a secondary communication path, the current text broadcast merely transmits text information. As a result, it is difficult to provide instruction (synchronization) regarding whether the text precisely corresponds to the principal broadcast, and, if YES, the location of the site of the corresponding relationship.

[0014]

The objective of the present invention is to solve the aforementioned problems of the prior art. In the following, an explanation will be given regarding an embodiment of the present invention. Figure 1 is a diagram illustrating the relationship between a broadcasting station and a receiver in an example of FM broadcasting. However, the present invention is not limited to FM broadcasting, and it may also be adopted in TV broadcasting, data transmission, etc.

[0015]

In addition to an audio signal being the principal broadcast in the prior art, a broadcasting station also uses a secondary carrier to perform text broadcasting service with text contained in the signal. For broadcasting station (1) shown in Figure 1, in addition to said principal broadcast,

text information with information of the content of the principal broadcast represented in hypertext format is also broadcast. The electromagnetic waves emitted from broadcasting station (1) go through communication path (2) to reach antenna (3) of text broadcasting receiving type radio (4). Said communication path (2) has a principal communication path for broadcasting the principal content of the broadcast, and a secondary communication path for broadcasting text information represented by said hypertext format.

[0016]

In the following, an explanation will be given regarding the broadcast content of said secondary communication path as the major portion of the present embodiment with reference to Figure 2. As shown in the figure, the left column illustrates an example of the principal broadcast, and the right column illustrates an example of the secondary broadcast of text information represented by the hypertext format in real time for information of the content of the principal broadcast. For example, assume that the principal broadcast has an announcer saying that "This is broadcasting station MOCK5." Corresponding to this message, text information represented by `<STATION="MOCK5":MESSAGE="The message from TOKYO">#` is broadcast as a secondary broadcast of text information. This text information shows that "the broadcasting station is MOCK5," and the catch phrase is "The message from TOKYO." Also, mark "#" at the end indicates that the phenomenon in the preceding description in `< >` is being continued.

[0017]

The next portion of the secondary broadcast `<TIME="20:45:50":TZONE="JST">@` indicates that the current time is 20:45:50 Japan Standard Time. Mark "@" at the end indicates that the phenomenon described within `< >` takes place at the time the mark is transmitted. By means of "@", "#" it is possible to guarantee that the content in the secondary communication path and the content in the principal communication path are synchronized with each other. In this case, for example, on the principal communication path, the message of "the time is 20:45:50" or the like may be set.

[0018]

The next portion of the secondary broadcast `<<TIME="21:00:00":TZONE="JST"><PROGRAM="79.5MHz://MK5. 100106">>@` indicates that broadcasting of the program identified as MK5.100106 is started at the time of 21:00. The aforementioned `<PROGRAM="79. 5MHz://MK5. 100106">` indicates the name or number of the program title, and, at the same time, it shows the broadcasting frequency or channel number,

indicating the start of said program. Here, the form appears as <<time><program>>@. Here, mark @ indicates that plural hypertext units can be written in the preceding <>, and plural phenomena take place at the time when @ is transmitted. Also, the above-listed hypertext description is merely an example, and there is no specific restriction on the description scheme. The same is true below.

[0019]

In the following, an explanation will be given regarding another embodiment of the present invention with reference to Figure 3. This embodiment shows an example in which a music program is broadcast as the principal broadcast from broadcasting station MOCK5 starting at 21:00.

[0020]

The initial secondary broadcast portion <STATION="MOCK5";MESSAGE="The message from TOKYO"># is the same as aforementioned. The next portion of the secondary broadcast <TIME="21:00:00";TZONE="JST"> is also the same as aforementioned. Also, as the next portion of the secondary broadcast, <PROGRAM="79.5MHz://MK5.100106">;PROGRAM NAME="today's music", ATTRIB="MUSIC",MESSAGE="Song in the Heart", LANG="Japanese",REF="http://WWW.mock5.co.jp/MK5.100106"> indicates that "Today's Music" as the program identified as MK5.100106 is started. The music of "Song from the Heart" is started, the language is Japanese, and the reference URL is represented as http://WWW.mock5.co.jp/MK5.100106.

[0021]

Then, "<MUSIC="MOCK5.AA1021";TITLE="compensation" ATTRIB="ENKA",PLAYER="TERESATEN">@" means that "Compensation" as the music identified by MOCK5.AA1021 is started, the type is "song", and the singer is "TERESATEN". Then, "<¥MUSIC="MOCK5.AA1021";TITLE="Compensation">@" means that music "Compensation" identified by MOCK5.AA102 comes to an end. Here, "¥" is a character indicating the end.

[0022]

The description of the next song "Evening Moon" is the same as said song "Compensation". Then, "<¥PROGRAM="79.5MHz://MK5.100106">@" indicates "end of program MK5.100106".

[0023]

In the following, an explanation will be given regarding embodiment of the receiver of the present invention. Figure 4 is a block diagram illustrating the constitution of the receiver. In this figure, the same part numbers as those adopted in Figure 1 are used. In this embodiment, in an FM broadcast with text broadcast as the secondary broadcast, when the secondary information of said hypertext description is transmitted, it is received by the receiving side.

[0024]

The constitution of the receiving side is composed of text broadcasting receiving type radio (4) that receives the broadcasting waves from the broadcasting station and outputs an audio signal as the received principal broadcast and data as secondary information, personal computer (hereinafter to be referred to as PC) (5), large-capacity hard disk (6), monitor (7), mouse (8) and speaker (9). Said text broadcasting receiving type radio (4) outputs the audio output as the principal broadcast and data output to PC (5).

[0025]

PC (5) is composed of conventional hardware, and it has audio signal input part (51) and audio signal output part (52) having the input/output functions of the audio signal. Also, as software, it has the following parts in the operation system: compression/format conversion part (53) that performs compression and format conversion of the input audio signal, extending/format conversion part (54) that extends and performs format conversion of the compressed audio signal data, HTML browser (55) with the general purpose function of an HTML browser for the www system, as well as the following part added for realizing the function of the present invention: input data analysis/HTML generating part (56).

[0026]

In the following, an explanation will be given regarding the operation of the present embodiment with reference to Figure 5. Figure 5 is a flow chart illustrating schematically the operation of input data analysis/HTML generating part (56).

[0027]

First of all, according to the preference of the user, the program to be heard with HTML generated and data of the type and other judgment standards are prepared, and they are stored in hard disk (6). Here, in step of operation S1, input data analysis/HTML generating part (56) reads data of the judgment standard from hard disk (6) to obtain selection standard (a). In the example shown in Figure 5, in the program of "Today's music" in broadcasting station MOCK5, the type

of "song" is set as the selection standard. Also, the program of "traffic information," the program of "weather forecast" also can be set as the selection standard.

[0028]

Then, in step of operation S2, based on said judgment standard (a), initial template (b) is formed and is stored in hard disk (6). This is an HTML frame file that does yet have content loaded. For example, initial template (b) shown in Figure 6 as an example is as follows:

```

<HTML><HEAD><TITLE>Mock5 Music</TITLE></HEAD><BODY><P><H1>今日の調①
べ</H1><H2>②収録演歌</H2><H3><OL></OL><HR><OL><LI>
<A HREF=" " >③最新の交通情報</A><LI><A HREF=" " >最新
の天気予報</A></OL></H3></BODY></HTML>
④

```

Key: 1 Today's Music
 2 Stored song
 3 Up-to-the-minute traffic information
 4 Up-to-the-minute weather forecast

For example, this template is stored as Hypertext.html on the hard disk 6.

[0029]

In step of operation S3, a click of the mouse is used to judge whether there a request for termination of generation has been made from outside. If the result of the judgment is YES, the processing comes to an end. If NOT, the flow goes to step of operation S4.

[0030]

In step of operation S4, the input data tag fed from the secondary information is read. In step of operation S5, if data fitting selection standard (a) in the tag arrive (YES in step of operation S5), the flow goes to step of operation S6, and, while the file name and entity (c) having the file name are generated, the corresponding content is additively written in the template stored in hard disk (6).

[0031]

In this example, first of all, in order to have <MUSIC="MOCK5. AA1021":TITLE="Compensation, "TERESATEN">,ATTRIB="ENKA",PLAYER=" fit the selection standard, a file with file name AA1021.ra is generated in hard disk audio/AA1021.ra, and, at the same time,

file name information is written in the template. Here, in addition to the basic file, PLAYER information "TERESATEN" is written additively to the template. Figure 7 shows the template at the time said processing comes to an end. Also, as shown in Figure 7, up-to-the-minute traffic information and up-to-the-minute weather information are also additively written in the template.

[0032]

In step of operation S7, input data analysis/HTML generating part (56) outputs instruction (d) for starting compression and format conversion of the audio signal from audio signal input part (51) to compression/format conversion part (53). According to said instruction (d), processed compressed audio signal data (e) are output to file audio/AA1021.ra in hard disk (6). For example, as the software for performing said compression/format conversion, Real Audio Encoder manufactured by the Progressive Network Corp. may be used.

[0033]

In step of operation S8, during this period, input data analysis/HTML generating part (56) continues reading of the input data tag, and it waits for the arrival of end tag `<¥MUSIC="MOCK5. AA1021":TITLE="Compensation">`. In step of operation S9, as the end of the content is detected, at the time said detection comes to an end, the compression format conversion is stopped, and, in step of operation S10, the file is closed.

[0034]

Then, the flow returns to step of operation S3, and judgment is made again on whether there is a request for termination of generation from the outside. If the judgment result is NO, the treatment of steps of operation S4-S10 is repeated. Finally, when said judgment result becomes YES, the processing comes to an end.

[0035]

Figure 8 is a diagram illustrating an example of secondary information data broadcast from said broadcasting station (1), and an example of an HTML file generated by the HTML generation treatment shown in Figure 5 of the data of said secondary information. Also attached are up-to-the-minute traffic information and weather forecast information.

[0036]

In the following, an explanation will be given regarding the operation of reproduction of an HTML file generated as aforementioned with reference to Figure 9. In step of operation S20, the user files a request for reproduction (f) from mouse (8) or the like. This reproduction request

(f) is instructed from HTML browser (55) to hard disk (6). In step of operation S21, according to said instruction, from hard disk (6), said HTML file (template file) (g) is read. In step of operation S22, said HTML file (g) is input to HTML browser (55), and it is converted by HTML browser (55) to display information (h) for display on monitor (7). As an example of said HTML browser (55), one may use Netscape Navigator manufactured by the Netscape Corp.

[0037]

Figure 10 is a diagram illustrating an example of display of Hypertext.html using said Netscape Navigator. In the display shown in Figure 10, the title of "Today's Music" and the title of a recorded song as well as the name of the singer are displayed. Also, up-to-the-minute traffic information and an up-to-the-minute weather forecast are displayed.

[0038]

In step of operation S23, by means of a mouse or the like, the user clicks on the desired music, traffic information, or weather forecast displayed on monitor (7). As a result, the flow goes to step of operation S24, and a request for reproduction (f) is made for the data of said clicked title from HTML browser (55). From hard disk (6), according to said reproduction request (f), the object resource is read, and compressed audio signal data (i) are sent to extending/format conversion part (54). In step of operation S25, said extending/format conversion part (54) extends and converts the format for said compressed audio signal data (i), and sends the result to audio signal output part (52). As a result, music, traffic information or a weather forecast is reproduced from speaker (9).

[0039]

For example, when the user clicks the site of "Compensation" (indicated in blue color) on Figure 10, HTML browser (55) fetches as the object resource audio/AA1021.ra, and this file is automatically input to the reproduction software and the desired music is played. For example, Real Audio manufactured by the Progressive Network Corp. may be used as the software of extending/format conversion part (54) that extends said compressed audio signal data (i).

[0040]

As explained above, in this embodiment, if the user registers the type or the like of the program to be recorded in the template shown in Figure 6, a program of the type is automatically selected in broadcasting, and it can be recorded as a hypertext description in a hard drive or other storage medium. Also, according to this embodiment, since the broadcasting program is recorded in the hypertext description, it can be reproduced freely by means of the HTML browser. Also,

during a secondary broadcast from the broadcasting station, if the access number of the internet homepage is input, the user accesses the homepage of the broadcasting station from its own browser, so that detailed data pertaining to the broadcasting can be obtained. In addition, during a secondary broadcast, if related program information is contained in the hypertext description, the user can sequentially and automatically access the related program and record it.

[0041]

In said embodiment, the identifier of the content of the hypertext in the secondary broadcast is explained, only the content of a principal broadcast fitting said judgment standard data is allowed to pass, and the passed principal broadcast is recorded once on the hard disk. However, one may also adopt a scheme in which the passed principal broadcast is not recorded on the hard disk; instead, it is sent as is to audio signal output part (52), and is played from speaker (9). In this way, the user can listen to a conventional preferable CD, and, when the desired program is started, the CD or the like can be interrupted to allow playing of the content of the principal broadcast on the speaker.

[0042]

As explained above, when the present invention is adopted, for a broadcast with information flowing unidirectionally, by adding identification information in real time, the user can select to listen to the program, to perform adaptive classification, and to perform audio/video recording of the program. Also, since the identifier can be defined as an extension of the existing www, it is possible to unify the www service of the internet and broadcasting.

[0043]

Effect of the invention

As explained above, the present invention has the following effects:

(1) According to the invention described in Claims 1-3, identification information is added in real time to the information of the content of the principal broadcast, and broadcasting can be performed in hypertext format.

[0044]

(2) According to the invention described in Claim 4, according to the description of the secondary broadcast, the principal broadcast is received selectively, and so-called filtering can be performed. For example, when the user listens to a conventional preferable CD, when the receiver starts traffic information, it is possible to interrupt the CD and play the content of the

principal broadcast on the speaker. Also, in case of a natural disaster, the principal broadcast can be played from the speaker automatically.

[0045]

(3) According to the invention described in Claims 5-8, a program of a type registered beforehand by the user is automatically selected during broadcasting, and it can be recorded in hypertext description on a hard disk or other storage medium. Commercials, the address of a chairperson or other information that is not necessarily needed can be automatically cut off. Also, since the broadcasting program is recorded in hypertext description, by means of a general purpose HTML browser or the like, it is possible to perform reproduction freely.

[0046]

(4) According to the invention described in Claims 5-8, it is possible to smoothly fetch the information content of the secondary broadcast in the computer. For example, the contents of weather forecasting/traffic information/news, etc. may be transmitted as the secondary broadcast in company with the identifier, and a personal computer can selectively record and classify them. Also, it is possible to form the contents of a year automatically as a database. In the prior art, for an advertisement in company with a reward, etc., one topic involves how to inform everybody of the contact site. Now, according to the present invention, the site (address, phone number, fax number, and www server address) and the contents of a reply for receiving a reward (quiz contents, address, method for declaring the selection result) are recorded in a personal computer for later retrieval.

[0047]

(5) According to the invention described in Claim 2 or 9, for example, since the music in the secondary broadcast contains the www address that describes in detail information regarding the singer, the group, etc., when the user is interested in music, it is possible to obtain various additional information, such as access information, CD information, concert information, etc. (improvement of promotion ability). Also, while the broadcast news and weather forecasts are classified according to the reception information contents, reference to other programs indicated in the program is also explained automatically, and the user can adaptively prepare recording/linking of a reference program. For example, when a specific program is used as a reference during news of the hypertext, the program is also automatically recorded, and the user can later read the news from the personal computer, and, at the same time, as needed, the user can use the mouse to click to listen to a specific program.

Brief description of the figures

Figure 1 is a schematic diagram illustrating the communication method of the present invention.

Figure 2 is a diagram illustrating an embodiment of the broadcasting content of the secondary communication path of the present invention.

Figure 3 is a diagram illustrating another embodiment of the broadcast contents of the secondary communication path of the present invention.

Figure 4 is a block diagram illustrating an embodiment of the receiver of the present invention.

Figure 5 is a flow chart illustrating the principal operation of the receiver.

Figure 6 is a diagram illustrating an example of an initial template.

Figure 7 is a diagram illustrating an example of a template with broadcast information written in it.

Figure 8 is a diagram illustrating an example of data of secondary information broadcast from a broadcasting station, and an example of an HTML file generated based on data of the secondary information.

Figure 9 is a flow chart illustrating the reproduction operation of an HTML file.

Figure 10 is a diagram illustrating an example of display of an HTML browser.

Explanation of symbols

- | | |
|----|--|
| 1 | Broadcasting station |
| 2 | Communication path |
| 4 | Text broadcasting receiving type radio |
| 5 | Personal computer (CP) |
| 6 | Hard disk |
| 7 | Monitor |
| 8 | Mouse |
| 51 | Audio signal input part |
| 52 | Audio signal output part |
| 53 | Compression/format conversion part |
| 54 | Extending/format conversion part |
| 55 | HTML browser |
| 56 | Input data analysis/HTML generating part |

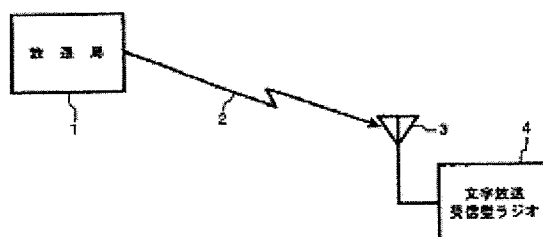


Figure 1

- Key: 1 Broadcasting station
4 Text broadcasting receiving type radio

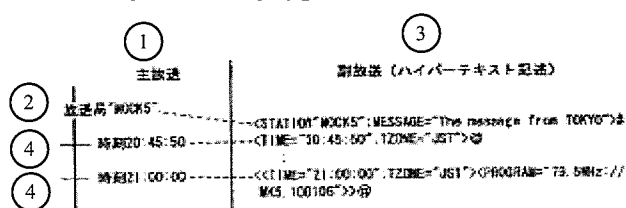


Figure 2

- Key: 1 Principal broadcast "MOCKS"
2 Broadcasting station
3 Secondary broadcast (hypertext description)
4 Time __

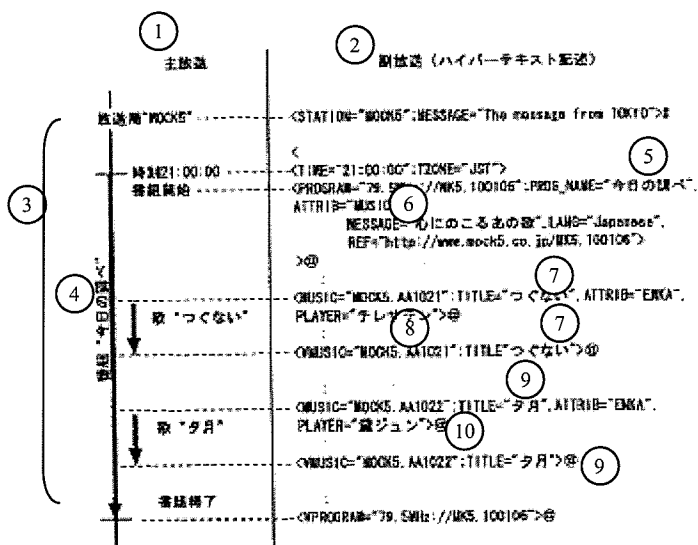


Figure 3

- Key: 1 Principal broadcast
2 Secondary broadcast (hypertext description)
3 Broadcasting station "MOCK5"

	Time 21:00:00
	Start of program
	Song "Compensation"
	Song "Evening Moon"
	End of program
4	Program "Today's Music"
5	"Today's Music"
6	"Song from Heart"
7	"Compensation"
8	"TERESATEN"
9	"Evening Moon"
10	"June Mayuzum"

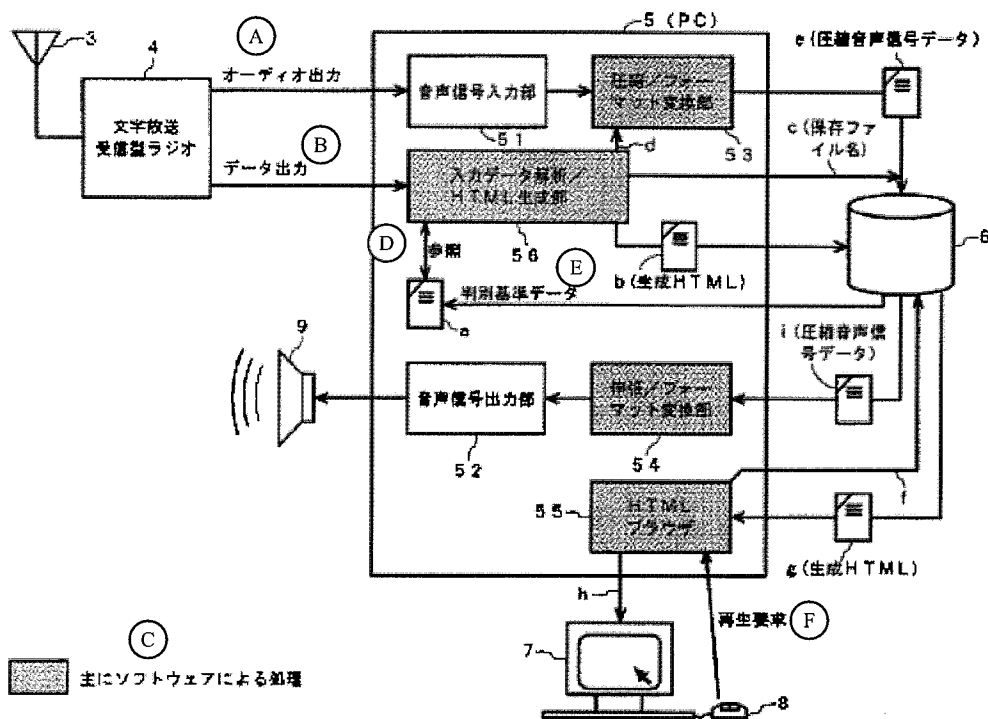


Figure 4

Key: b (Generated HTML)
c (Stored file name)
e (Compressed audio signal data)
g (Generated HTML)
i (Compressed audio signal data)
A Audio output
B Data output
C Mainly processing by means of software
D Reference
E Discriminant criterion data

F	Reproduction request
4	Text broadcasting receiving type radio
51	Audio signal input part
52	Audio signal output part
53	Compressing/format converting part
54	Extending/format converting part
55	HTML browser
56	Input data analysis/HTML generating part

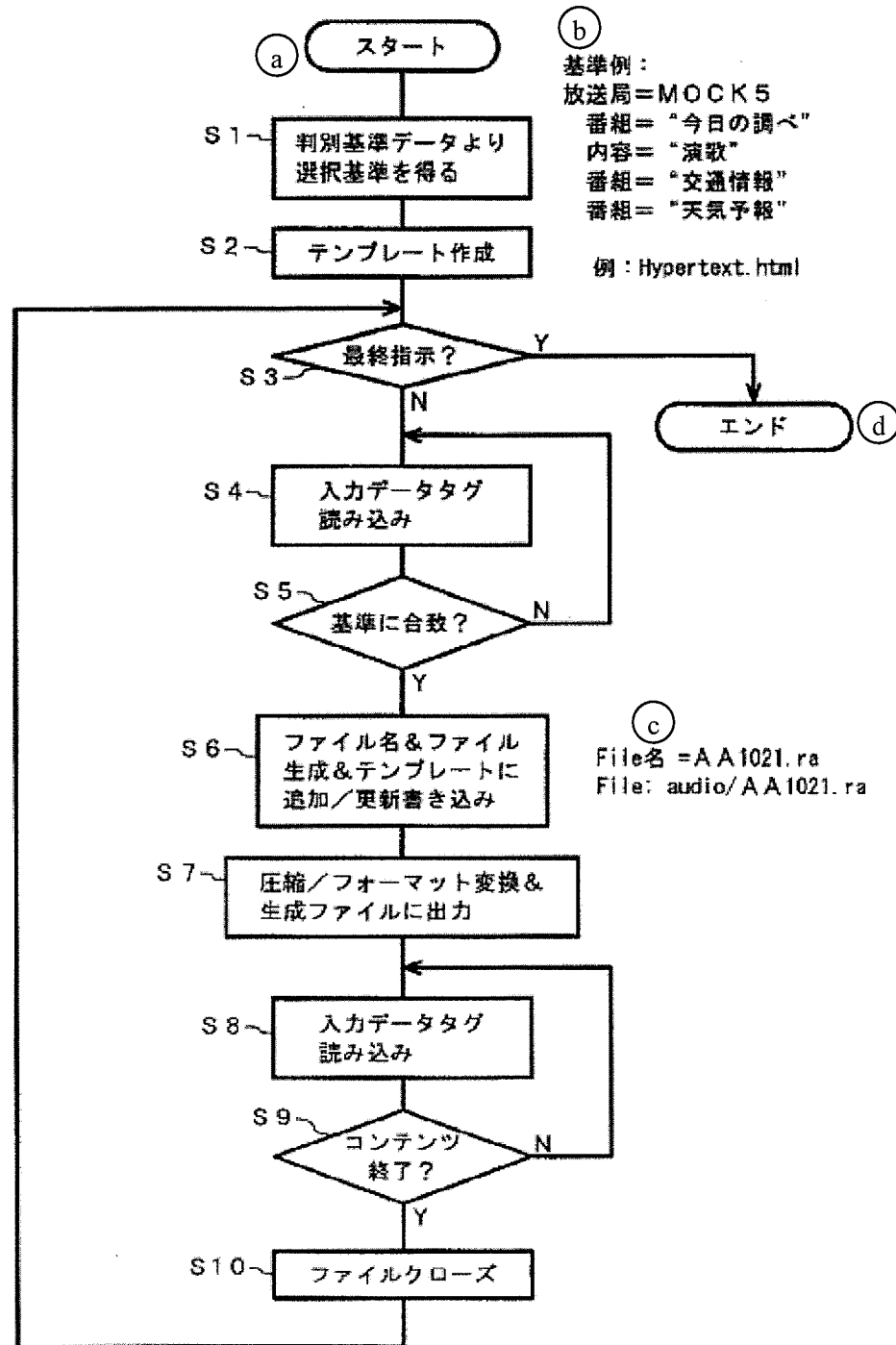


Figure 5

Key: a START
 b Standard example:
 Broadcasting station = MOCK5
 Program = "Today's Music"
 Content = "Song"
 Program = "Traffic information"

Program = "Weather forecast"

Example:

- c File name
- d END
- S1 Obtaining of selection standard from judgment standard data
- S2 Preparation of template
- S3 Final instruction?
- S4 Read of input data tag
- S5 Fits standard?
- S6 File name & file generation & addition/rewrite to template
- S7 Compressed/format conversion & output to generated file
- S8 Read of input data tag
- S9 End of content?
- S10 File closed

```

<HTML><HEAD>
<TITLE>Rock5 Music</TITLE>
</HEAD>
<BODY><P>
<H1>今日の曲</H1>
<H2>収録楽曲</H2>
<H3>
<OL>
<OL>
</OL>
</H3>
<OL>
<LI><A HREF="
">最新の交通情報</A>
<LI><A HREF="
">最新の天気予報</A>
</OL>
</BODY>
</HTML>

```

Figure 6

- Key:
- 1 Today's Music
 - 2 Songs to play
 - 3 Up-to-the-minute traffic information
 - Up-to-the-minute weather forecast

```

<HTML><HEAD>
<TITLE>Rock5 Music</TITLE>
</HEAD>
<BODY><P>
<H1>今日の曲</H1>
<H2>収録楽曲</H2>
<H3>
<OL>
<OL>
</OL>
</H3>
<OL>
<LI><A HREF="audio/AA1021.ra">つぐない</A>byテレサテン
</LI>
</OL>
<OL>
<LI><A HREF="
">最新の交通情報</A>
<LI><A HREF="
">最新の天気予報</A>
</LI>
</OL>
</BODY>
</HTML>

```

Figure 7

- Key: 1 Today's Music
 2 Songs to play
 3 Compensation
 4 TERESATEN
 5 Up-to-the-minute traffic information
 Up-to-the-minute weather forecast

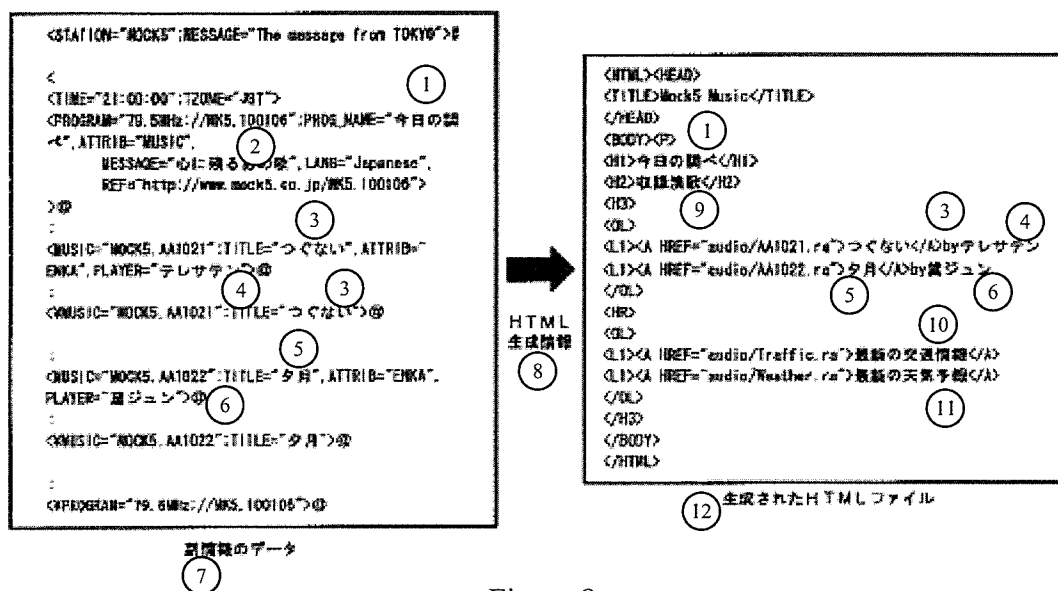


Figure 8

- Key: 1 Today's Music
 2 Song in Heart
 3 Compensation
 4 TERESATEN
 5 Evening Moon
 6 [illegible] June
 7 Data of secondary information
 8 HTML generated information
 9 Songs to be played
 10 Up-to-the-minute traffic information
 11 Up-to-the-minute weather forecast
 12 Generated HTML file

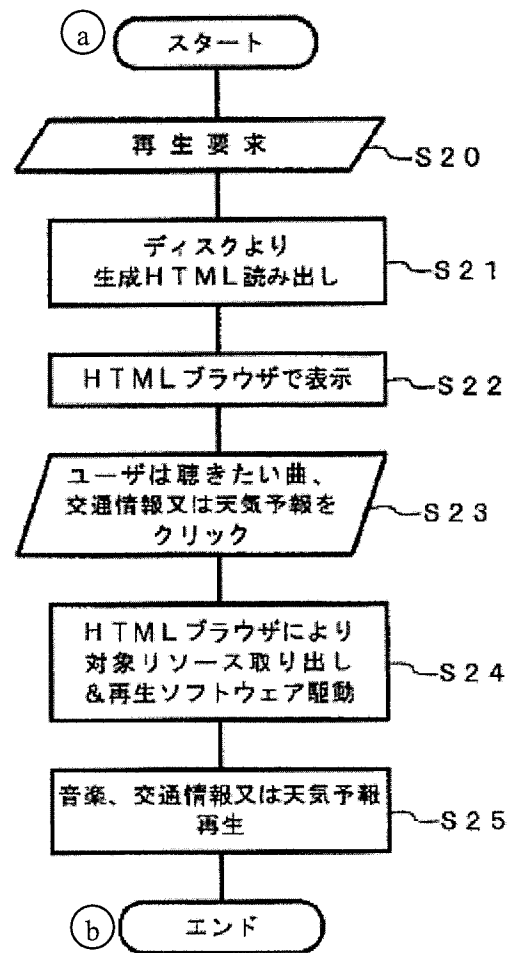


Figure 9

- Key:
- a START
 - b END
 - S20 Request for reproduction
 - S21 Read of generated HTML from disk
 - S22 Display with HTML browser
 - S23 User clicks the music, traffic information or the weather forecast to be played
 - S24 Fetching of object resource by HTML browser & driving of reproduction software
 - S25 Playing of music, traffic information or weather forecast

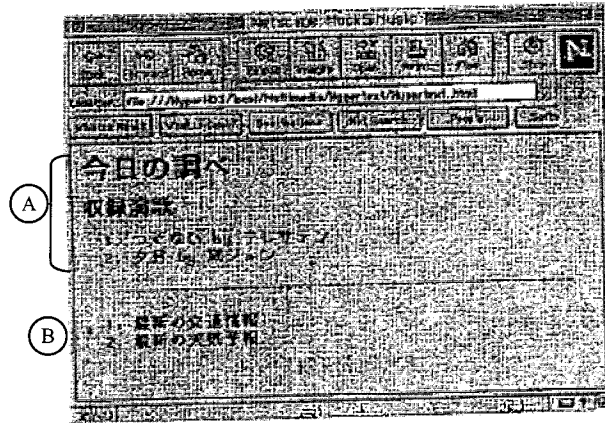


Figure 10

- Key: A Today's Music
 Songs to play
 1. Compensation
 2. Evening Moon
- B 1. Up-to-the-minute traffic information
 2. Up-to-the-minute weather forecast